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# EUROPEAN PATENT APPLICATION

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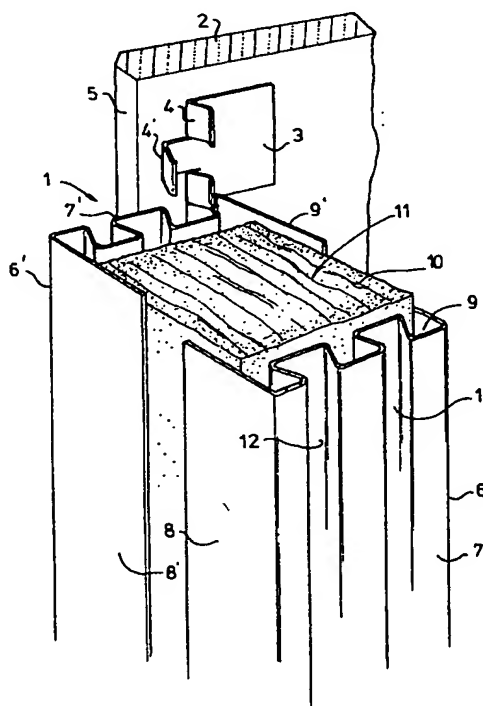
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## (54) Sandwich stud

(57) The invention relates to a stud (1) for fixing wall or ceiling panels. The stud (1) comprises a core (10) of compressed fibre material, the wall sections (7,7') comprising two individual, essentially U-shaped sections (6,6'). Said sections (6,6') are glued to the fibre core (10) such that their side faces (8,9,8',9') do not touch one another. By this means a rigid section is obtained which has advantageous sound-insulating properties.



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## Description

[0001] The invention relates to a stud provided with two wall sections located opposite one another, which wall sections can have longitudinal slots to accommodate fixing elements of panels to be fixed to the stud.

[0002] It is known to fix wall or ceiling panels to studs which are formed from roll-formed or metal sections. Said sections can have been provided with longitudinal slots to accommodate fixing elements such as, for example, spring lips, of the wall panels. Sections of this type have been described, for example, in Netherlands Patent Application number 1 003 064 in the name of the Applicant. Another system makes use of a screw fixing, the sections being of essentially flat construction.

[0003] A disadvantage when the known tubular studs are used, especially when constructing partitions, is the propagation of sound via the studs. Furthermore, the closed roll-formed sections are relatively expensive.

[0004] One aim of the present invention is to provide a stud with which good sound insulation is ensured and which can be produced in an inexpensive manner. A further aim of the present invention is to provide a stud which is sufficiently rigid and has a high degree of fire retardancy.

[0005] To this end the stud according to the present invention is characterised in that the stud comprises a core of a compressed fibre material, wherein the wall sections are formed by two individual, essentially U-shaped sections, having a front face and two side faces which are located transversely to the front face and are in contact with side faces of the core, wherein the sections have been joined to the core by means of an adhesive and wherein the side faces of the sections located opposite one another do not touch one another.

[0006] It has been found that a flexible core on which the U-shaped sections can be glued can be obtained by pressing a fibre material, preferably mineral wool. Because the side faces of the sections do not touch one another, sound vibrations are damped by the core. Preferably, the fibre material is pressed to a density of between 50 and 500 kg/m<sup>3</sup>, preferably approximately 100 kg/m<sup>3</sup>. By this means a sufficiently robust core is obtained with retention of adequate sound-insulating properties.

[0007] Preferably, the fibres in the core are oriented essentially at right angles to the front faces of the sections. As a result adequate tensile strength is obtained in a direction of force perpendicular to the front faces. The fibres will have a tendency to detach from the core in the longitudinal direction of the studs, but will be held in place here as a result of the gluing to the sections.

[0008] By using mineral wool as core, an inexpensive and fire retardant stud is obtained which, compared with known roll-formed tubular studs, results in a saving in material of approximately 30% and an improvement in the sound-insulating properties of about 20 dBA while retaining adequate structural rigidity.

[0009] The invention will be explained in more detail with reference to the single appended figure. The figure shows a stud 1 to which a wall panel 2 has been fixed. The wall panel 2 comprises a plasterboard which can be clamped to the stud 1 by means of a clamping bracket 3 with spring lips 4, 4'. With this construction two neighbouring panels 2 can be positioned with their butt edges 5 seamlessly in contact with one another. The stud 1 comprises two U-shaped sections 6, 6'. Each section is provided with a front face 7, 7' and two side faces 8, 9; 8', 9'. Front faces 7, 7' and the side faces 8, 9; 8', 9' have been glued to a core 10, which has been formed from glass wool fibres. The fibres 11 in said core are oriented at right angles to the front faces 7, 7'. The front faces 7, 7' are provided with two parallel seating slots 12, 13 which have a dovetail-shaped cross-section. The sections 6, 6' are preferably formed from metal, such as Sendzimir with a thickness of 0.6 mm. However, the sections 6, 6' can also advantageously be formed from a plastic material. It has been found that good results are obtained with a core 10 made of mineral wool which has been compressed to a density of 100 kg/m<sup>3</sup>. An advantageous mineral wool is formed by Ca-Mg-Al mineral wool fibres bonded with a small amount of phenol-formaldehyde resin, such as is produced by Rockwool Lapinus B.V. Because the side walls 8, 8' of the sections 6, 6' located opposite one another do not touch one another, good sound insulation is obtained. As a result of the abovementioned density of the core, sound vibrations are adequately damped, whilst adequate structural rigidity of the stud 1 is retained. A suitable adhesive for fixing the metal sections 6, 6' to the mineral wool core 11 is commercially available under the name Rockwool 300, which adhesive has a composition based on polyurethane prepolymer.

[0010] Although use of mineral wool for the core 10 is to be preferred, it is also possible to use another sound-insulating fibre material, such as glass wool, flax or wool, for this. It is also possible to make the faces 7, 7' of the sections 6, 6' flat for screw fixing of the wall panels 2.

## Claims

1. Stud (1) provided with two wall sections (7, 7') located opposite one another, characterised in that the stud comprises a core (10) of a compressed fibre material, wherein the wall sections are formed by two individual, essentially U-shaped sections (6, 6'), having a front face (7, 7') and two side faces (8, 9; 8', 9') which are located transversely to the front face (7, 7') and are in contact with side faces of the core (10), wherein the sections (6, 6') have been joined to the core (10) by means of an adhesive and wherein the side faces (8, 9; 8', 9') of the sections (6, 6') located opposite one another do not touch one another.

2. Stud (1) according to Claim 1, characterised in that the wall sections (7, 7') are provided with longitudinal slots (12, 13) to accommodate fixing elements of panels to be fixed to the stud. 5
3. Stud according to Claim 1 or 2, characterised in that the fibre material is mineral wool. 10
4. Stud according to Claim 1, 2 or 3, characterised in that the density of the fibre material is between 50 and 500 kg/m<sup>3</sup>, preferably approximately 100 kg/m<sup>3</sup>. 15
5. Stud according to Claim 3, characterised in that the fibres of the core are oriented essentially at right angles to the front faces of the sections. 20
6. Stud according to one of the preceding claims, characterised in that the sections are formed from metal. 25
7. Stud according to one of the preceding claims, characterised in that the front walls are provided with two parallel dovetail-shaped slots. 30

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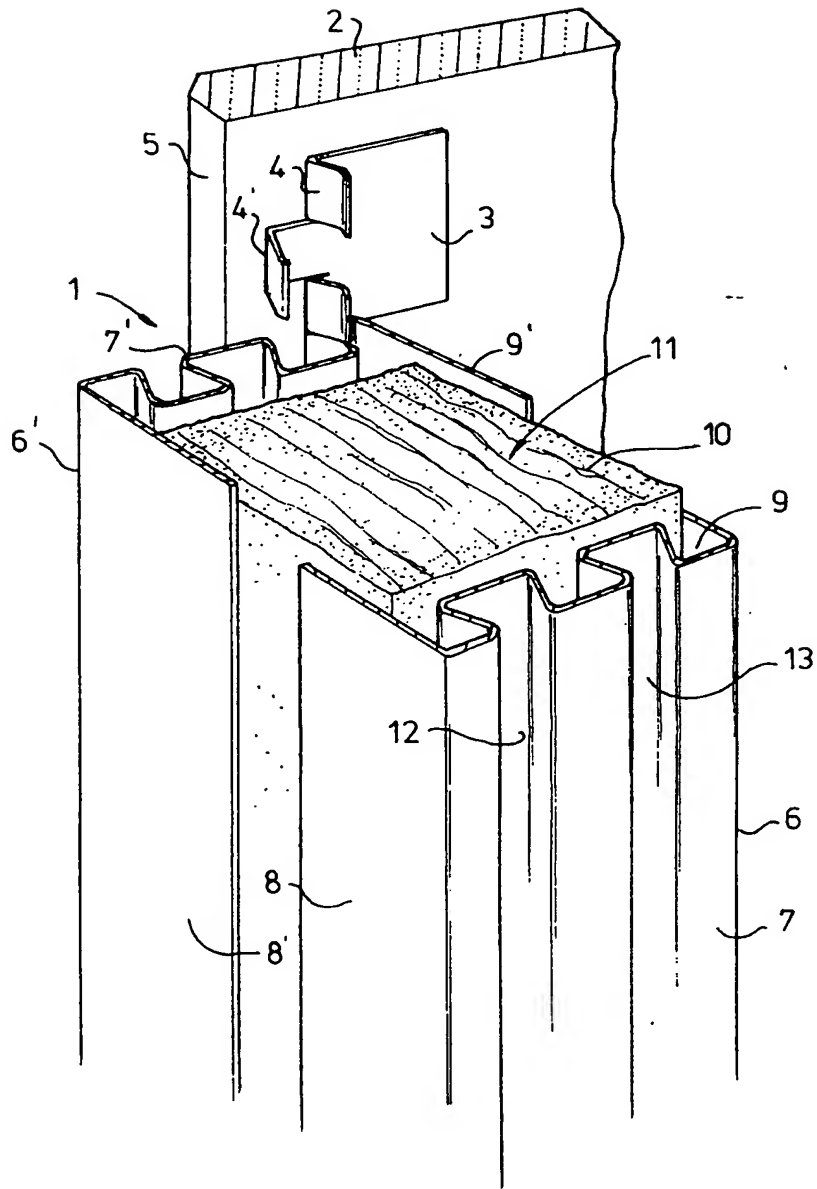
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## EUROPEAN SEARCH REPORT

Application Number  
EP 99 20 0106

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	DE 43 16 931 A (GOLDBACH GMBH HOLZ) 24 November 1994 * column 2, line 28 - line 63; figure 1 *	1,3,6	E04B2/74
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A	US 3 531 901 A (WILL CHARLES H JR ET AL) 6 October 1970 * column 2, line 66 - column 3, line 60; figures 1-3,6 *	1,5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13 April 1999	Examiner Kriekoukis, S
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/92 (P4/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 99 20 0106

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The members are as contained in the European Patent Office EDP file on  
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